The rise in executive compensation - Consequence of a War for Talents ?

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WAR FOR TALENTS? EXPLAINING THE RISE IN MANAGEMENT COMPENSATION

Abstract

The rise in executive compensation has triggered a great amount of public controversy and academic research. Critics have referred to the salaries paid to managers as “pay without performance”, while defenders have countered that the large salaries can be explained by a “war for talents”. This research tests whether a war for talent provides an explanation for the rise in management compensation. According to defenders of the high salaries, resting on the efficient labor market view, the rise in executive compensation is the product of a shift toward transferable managerial skills, particularly in large firms, and this trend contributes to firm performance. Relying on an internationalized and deregulated managerial labor market, i.e. the Swiss banking sector, the empirical findings confirm that a shift toward transferable managerial skills in large firms is indeed an explanation for the rise in management compensation. However, the shift towards transferable managerial skills in large firms does not improve firm performance, giving no supporting evidence for a war for talent.

Keywords

Executive compensation, efficient labor market view, transferable skills, outside options

WAR FOR TALENTS?

EXPLAINING THE RISE IN MANAGEMENT COMPENSATION

Introduction

The compensation of top managers has attracted the attention of scientists for many years, in particular of economists and organizational theorists. Since the 1990s, executive compensation has dramatically increased worldwide (for an overview: Murphy, 1999). From 1992 to 2002, the average CEO pay in US S&P 500 firms rose by a factor of 3.5 (Jensen *et al.*, 2004). From 1995 to 2007 the average executive pay in German DAX30 firms stepped up by a factor of 4.6 (Schwalbach, 2008). From 2002 to 2006, the average executive pay in Swiss SMI and SPI firms increased by a factor of 2.1 (Rost & Osterloh, 2008a). The rise in executive compensation has triggered a large amount of public controversy and academic research. Critics have referred to the salaries paid to managers as "pay without performance" (see e.g. Bebchuk & Fried, 2004; Bebchuk & Grinstein, 2005; Bogle, 2008; Tosi, 2005; Tosi *et al.*, 2000), while defenders have countered that the large salaries can be explained by a war for talents (see e.g. Kaplan, 2008; Martin & Moldoveanu, 2003; Murphy & Zábojník, 2004, 2007).

Defenders of the high salaries rest on the efficient labor market view. The rise in management compensation in recent years is explained by the assumption that, over the past decades, general managerial skills have become more important relative to firm-specific knowledge. Internationalization, deregulation and worldwide competition increase the outside options of managers who have acquired skills which are transferable across firms and industries (Murphy & Zábojník, 2007). The "war for talents" requires higher compensation, particularly in large firms, to attract and retain managerial talents (Kaplan, 2008; Martin & Moldoveanu, 2003). Former empirical investigations centered on firm characteristics, such as firm size, profitability, growth, R&D expenditures, ownership structure, inside or outside directors, etc., to measure competition in the managerial labor market. However, such evidence is largely indirect because managerial talent itself is not measured. For example, the high correlation between executive compensation and firm size can not only be explained by the attraction of highly talented managers in large firms (Kostiuk, 1980; Murphy & Zábojník, 2007; Rosen, 1982), but also by management entrenchment in large firms (Tosi *et al.*, 2000).

This article adds to the executive compensation literature by empirically testing whether a "war for talent" explains the rise in executive compensation. We take theoretical models of the efficient labor market view as the basis. According to these models, the rise in executive compensation is the product of a shift toward transferable managerial skills, in particular in larger firms. This greater focus on transferable skills, especially in large firms, increases the production of managers (Garicano & Rossi-

Hansberg, 2006). For an empirical test, we measure transferable managerial skills in an internationalized and deregulated managerial labor market, i.e. the Swiss banking sector. We first test whether the increase of executive compensation from 2004 to 2008 in listed Swiss banks can be explained by higher outside options due to transferable managerial skills in larger firms. Secondly, we test whether higher outside options due to transferable managerial skills in larger firms contribute to actual firm performance.

The article is structured as follows. The next section presents the theoretical model of the managerial efficient labor market view, with former empirical evidence, and develops hypotheses. The succeeding sections present methods, findings, and discussion.

The efficient labor market view

Executive compensation research began in the early 1980s. It paralleled on the one hand the emergence of worldwide economic changes, i.e. the increasing internationalization and deregulation of markets, and on the other hand the general acceptance of agency theory (Murphy, 1999). The literature explains the rise of executive compensation by referring to worldwide economic changes. While authors of the entrenchment view argue that agency problems increase in worldwide, deregulated markets due to a lack of control by the shareholders (Bebchuk & Fried, 2003), authors of the efficient labor market view base their arguments on the assumption that agency problems between owners and managers decrease in worldwide, deregulated markets due to competition (Fama, 1980). In the following section, the theoretical model of the efficient labor market view is presented.

Theoretical model

The most prominent theoretical explanations for competition in the managerial labor market are developed by Murphy and Zábojník (2007), and by Gabaix and Landier (2008). Both models start from a simple equilibrium model of CEO pay where CEOs have different talents and are matched to firms in a competitive assignment model. Since talent has the greatest effect in bigger firms, in market equilibrium, the most skilled CEOs are employed by the largest companies. The next section gives a short introduction of the market model of Murphy and Zabojnik (2007). It explains the rise in management compensation in recent years by assuming that over the past decades, general managerial skills have become more important relative to firm-specific knowledge. General skills are valuable across firms and industries and are therefore “priced” into the managerial labor market, whereas firm-specific knowledge is not transferable, and thus “unpriced”. The model assumes that large firms strongly rely on general, transferable skills, since such managerial talent contributes to firm profitability.

The model assumes that firms consist of workers and one executive, and that they produce output by combining labor with the executives' managerial ability a. A firm employing n workers produces $f(n)sa$ units of output, where s is the amount of the executive's firm-specific knowledge and a the amount of the executive's managerial

ability. If the executive is promoted internally, then *s= 1*. If the firm hires an external candidate, then *s= y<1.* Further, the profit of a firm with *n* workers is a function of the market wage for workers *w*, the executive's ability *a* and his/her market wage $w^M(a)$.

$$\pi(n,a,s) = f(n)s - aw - w^M(a) \quad (1)$$

If there exists a free entry of firms at any size, the equilibrium wage of an executive of ability *a* is determined by the best match for his/her ability at a firm of size $n^*(a)$ and his/her outside options, since each manager can choose to work in a non-managerial position at wage *w*.

$$n^*(a) \equiv \arg\max_n \{f(n)y - aw\} \quad (2)$$

$$W^M(a,y) = \max\{w, \psi(a)\} \equiv \max\{w, f(n^*(a))y - aw - w^M(n^*(a))\} \quad (3)$$

For a given level of firm specific knowledge *y*, the model implies that executives with an ability *a* lower than $\bar{a}$ and all workers earn wage *w*, while managers with an ability equal or higher than $\bar{a}$ earn $\psi(a) = f(n^*)y - aw^*$.

Suppose now that a firm has an executive vacancy. The profit function $\pi(n,a,s) = f(n)s - aw - w^M(a)$ indicates that the firm faces a make or buy trade-off: the firm can promote an internal candidate and preserve firm-specific managerial knowledge *s*. Alternatively, the firm can hire from the outside market for managers and pick the best candidate for its size with the ability a^*. The optimal promotion strategy of a firm whose internal candidate has ability $\hat{a}$ is to promote this candidate if the firm's profit is $\pi(n,\hat{a},1) \geq 0$.

$$\pi(n,\hat{a},1) \geq 0 \text{ if: } f(n)\hat{a} - w \geq w^M(\hat{a}) \text{ with: } \pi(n,\hat{a},1) = f(n)y\hat{a} - w - w^M(\hat{a}) \quad (4)$$

A firm does not promote its internal candidate if an outside executive is the best match for the firm's perfect fit, that is $a^* > \bar{a}$. The fact that the firm's profit gross of the manager's wages, $f(n)\hat{a} - w$, increases linearly with $\hat{a}$, while the manager's wage $w^M(\hat{a})$ is non-decreasing and convex, means that a firm will hire an outside manager if $\pi(n,\hat{a},1) < \pi(n,a^*,y)$.

$$\pi(n,a^*,y) = f(n)y^* - aw - w^M(a^*) \text{ with: } a^* \equiv \arg\max_n \{f(n)y - aw - w^M(a)\} \quad (5)$$

In this case, the firm earns at most zero profit in equilibrium $\pi(n,a^*,y) = 0$ by substituting $w^M(a)$ into $w^M(a^*)$. [1]

$$\pi(n,a^*,y) = 0 \text{ if: } f(n)y^* - w = w^M(a^*) \quad (6)$$

[1] When the firm's profit from internal promotion is negative, $\pi(n,\hat{a},1) < 0$, while no outside executive is a better match for the firm's perfect fit, $a^* < \bar{a}$, the firm's profit maximizing strategy is to exit the market.

Because $a^*(n)$ decreases in n, smaller firms rarely hire outside executives. Either their internal candidates turn out to have sufficiently high managerial skills, or they go out of business. The above considerations imply that if an internal candidate's ability falls within an interval $[a_L(n) \geq 0,\ a_H(n) < \bar{a}]$, a firm will fill the position internally. The firm promotes an outside executive if this executive matches the firm's perfect fit, a^*, more closely.

The basic premise of the market model is that, over the past decades, general managerial skills have become more important relative to firm-specific knowledge. As illustrated in Figure 1, the shift over the past decades increases the amount of general managerial skills from some y_L to some $y_H > y_L$. The increase in y increases the absolute and relative executive market wage. In Figure 1, this is represented as an upward shift in the executive wage curve from $f(n^*)y_L a - w^*$ to $f(n^*)y_H a - w^*$. Underlying this is the idea that competition for the most talented managers is becoming more intense, i.e. transferable skills are well priced in the managerial labor market, while firm-specific skills are underpriced.

Insert Figure 1 about here

Former empirical findings

Former empirical investigations centered on firm characteristics, such as firm size, profitability, growth, R&D expenditures, ownership structure, inside or outside directors, etc., to measure competition in the managerial labor market. For example, Murphy and Zábojník (2007) show that, over the last thirty years, the proportion of outside CEOs has doubled, the average job tenure of CEOs has substantially declined, and the pay premium of outside CEOs has almost quadrupled. The authors take this as empirical evidence for the market model. From the entrenchment point of view, the listed trends could just as well indicate control failure. Since managerial ability is not directly measured, the findings could also imply that managers jump from one company to another and negotiate higher compensation, but are not creating shareholder wealth. "In general, the best-paid baseball players are also the most skilled. The main question is: Is the CEO labor market working in the same way? Do you make more money if you are better at it? ..." (Daines, 2005: 1).

Criticism can be also made with respect to other studies empirically testing the efficient labor market view. For example, it has been shown that firm size explains many of the patterns in CEO pay - across firms, over time, and between countries (Gabaix & Landier, 2008). While labor market research views this as evidence that CEO talent justifies large pay differences (Gabaix & Landier, 2008; Gayle & Miller, forthcoming), entrenchment-oriented research views this as evidence that CEO power has a great impact on pay (Bebchuk & Fried, 2004; Tosi *et al.*, 2000). Other studies aim to support the efficient labor market view by showing that an increase in international trade raises CEO pay (Cuñat & Guadalupe, 2009; Marin & Verdier, 2004). It is argued that globalization has led to foreign firms entering the war for managerial talent, which in turn has put upward pressure on pay. However, in the literature, globalization is also used to measure

justifications of higher pays at the top, supporting the entrenchment view (Tosi *et al.*, 2000). Other papers examine the effect of deregulating the market for corporate control on CEO turnover and pay (Hubbard & Palia, 1995). While higher CEO turnover and pay is interpreted as evidence for the efficient labor market view, it could also be interpreted as evidence of greater agency problems in deregulated markets. Authors have also used the visibility of CEOs in the financial press to measure talent (Rajgopal *et al.*, 2006). Yet, in the executive literature press, visibility is also applied to measure CEO hubris (Hayward & Hambrick, 1997) or CEO manipulations to influence compensation (Baker *et al.*, 2003; Heron & Lie, 2009; Yermack, 1997).

Finally, former empirical research on the managerial labor market can be further criticized due to sample characteristics. First, most studies solely focus on CEOs and thus reduce managerial competition to persons already at the top rung of the hierarchical ladder. It is assumed that they are better than those who are not CEOs (Lazear & Rosen, 1981; Lazear & Shaw, 2007). A reference group ensuring sufficient variance in managerial talent is missing. Second, most samples comprise firms of many industries, thus lumping the demanded talent in different managerial labor markets together (for an exception see e.g. Hubbard & Palia, 1995). Even though it is assumed that transferable skills across firms are becoming more important, it is still questionable how many skills are indeed transferable across different industries (Cremers & Grinstein, 2009).

Hypotheses

In the following, we contribute to the empirical investigations of the efficient labor market view by deducing stepwise hypotheses to test this view. We follow the theoretical model of Murphy and Zábojník (2007). According to this model, management compensation increases if demanded transferable managerial talent increases the outside options of managers. By employing a survival analysis, with job tenure as the dependent variable, we first test whether a higher amount of transferable skills (a) indeed increases the outside options of managers as supposed in equations 2 and 3.[2] Second, in a fixed-effect model, we predict the rise of executive compensation and firm performance within a bank by changes in the outside options of managers, due to transferable skills and changes in firm size (see in particular equations 3 and 5 indicating that wage w and profit π are dependent on the best match for transferable skills at a firm of size $n^*(a)$). In contrast to former studies, we measure managerial competition for transferable skills and not just assume that certain variables to some extent reflect competition, e.g. whether managers are insiders or outsiders. We also contribute to the empirical literature by sampling characteristics suitable to test the efficient labor market view. We rely on one highly competitive managerial labor market,

[2] The use of survival rates is a common approach in labor market research to measure outside options (Blossfeld & Rohwer, 2001). Shorter probabilities of job tenure arise due to two facts. First, a manager is in demand by many firms (Murphy & Zábojník, 2007). This aspect increases the demand-side risks for the present employer of the manager. Second, a manager competes with other managers (Hermalin, 2005). This aspect increases the supply-side risks of the manager. In contrast, in the entrenchment view, longer tenures are an indication of managerial power (Hill & Phan, 1991).

the Swiss banking sector. The included top management team members have different positions in the hierarchical ladder of the firm, ensuring sufficient variance in managerial talent (see e.g. Fee & Hadlock, 2004).

The efficient labor market view starts from the basic premise that for top-managers, the external labor market has a greater significance explaining the superiority of general respectively transferable managerial skills (Becker, 1975; Murphy & Zábojník, 2007).[3] While most authors only rely on human capital (Murphy & Zábojník, 2007), the literature has introduced social capital (Burt, 1992, 1997), international experience (Cuñat & Guadalupe, 2009; Marin & Verdier, 2003), and operational experience (Lazear & Rosen, 1981), to describe the demanded transferable skills of managers. Since firms compete for the most talented managers, transferable skills go along with higher outside options of mangers, as reflected in shorter job tenure (Cannella & Shen, 2001; Hermalin, 2005). As shown in equation 3, managers with high transferable skills (a=max, y=0) can choose to work in a non-managerial position to maximize wage w.

The empirical literature supports that the deregulation of markets has reduced the tenure of managers (Geddes & Vinod, 2002), which may be explained by higher amounts of transferable skills. Further, Murphy and Zábojník (2007) show during the 1970s and 1980s, outside hires accounted for 15% and 17% of all CEO replacements, respectively. In contrast, during the 1990s, 27% were hired from outside the company. This evidence seems to support that the demand for transferable skills is increasing since the 1990s.[4] In accordance with the efficient labor market view, the following hypothesis will be tested.

Hypothesis 1. Higher transferable skills of managers go along with higher outside options of managers as reflected in shorter job tenure.

It is further argued that individuals with more professional options can only be kept by a company through competitive rates of pay (Jensen & Murhpy, 1990; Kaplan, 2008, see again equation 3). Empirical research supports that CEOs with firm specific human capital earn lower compensation compared to CEOs hired from outside (Cremers & Grinstein, 2009; Harris & Helfat, 1997), that the social capital of managers is positively linked to career advantages and compensation (Burt, 1992; Hallock, 1997; Zajac & Westphal, 1996), that the internationalization of firms increases executive compensation (Carpenter & Sanders, 2004; Roth & O'Donnell, 1996; Sanders & Carpenter, 1998), or that operational experience, as reflected in the hierarchical position of managers, increases compensation (Lazear & Shaw, 2007). Such evidence is, however, indirect it does not show that the outside options due to transferable skills indeed increase. Other studies measure the effect of competition on pay, but do not show

[3] Labor markets can be divided into internal markets, where promotions and wages are determined internally, and external markets, where hires and wages are determined externally (Lazear & Oyer, 2004).

[4] Other authors, however, find no evidence that the amount of outside hires is increasing since the 1990s (Cremers & Grinstein, 2009). Different empirical findings may be explained by different definitions of in- and outsiders.

whether a higher amount of transferable skills explain the findings. For example, findings have shown that, in competitive markets, both CEO turnover and compensation increase (Hubbard & Palia, 1995), or that higher compensation reduces executive turnover (Balsam & Miharjo, 2007). According to the efficient labor market view, transferable skills increase compensation *because* persons with higher outside options can only be kept by competitive wages (see equation 3: the amount of transferable skills *a* determine outside options and thus wages *w*). We therefore will test whether persons with a lower survival probability in firms, due to their higher transferable skills, earn higher compensation.

Hypothesis 2. Higher outside options of managers due to transferable skills increase compensation.

According to the efficient labor market view, managerial competition for transferable skills increases with firm size (n*(a)), since large firms need and attract the most talented managers (Kostiuk, 1980; Murphy & Zábojník, 2007; Rosen, 1982). It implies that (a) managers of large firms have more outside options due to higher transferable skills (see equation 2), and (b) that the attracted talent in larger firms can be only retained by paying higher compensation (see equation 3). The literature supports that the transferable skills of managers, measured by the amount of social capital or international experience, is indeed higher in large firms (Rost & Osterloh, 2009a). It has been further supported that executive compensation increases with firm size (Gabaix & Landier, 2008; Murphy, 1999; Tosi *et al.*, 2000). However, both findings can be also interpreted as support for increasing managerial power, as they do not measure outside options due to transferable skills. The following hypotheses will be tested.

Hypothesis 3. Increasing firm size goes along with higher outside options of managers due to transferable skills.

Hypothesis 4. Increasing firm size goes along with higher outside options of managers due to transferable skills and thus increases compensation.

Finally, the greater focus on skills in large firms leads to the selection of the best managerial talents in the labor market (see equation 2, where managers with higher transferable skills match at larger firms $n^*(a)$). Strong competition in large firms increases the production of managers and thus firm performance (Garicano & Rossi-Hansberg, 2006; Murphy & Zábojník, 2007). As shown in equation 5, firm profit π is a function of firm size n and transferable skills a*. The literature refers to this hypothesis as the managerial ability hypothesis (Castanias & Helfat, 2001; Fee & Hadlock, 2003; Murphy & Zábojník, 2007). Empirically, this hypothesis has been tested mostly without considering the effects of firm size. For example, Fee and Hadlock (2003) find evidence that superior stock price performance increases the likelihood that an executive will obtain a CEO position elsewhere. Other studies show that executive turnover is related to firm performance (Kaplan, 1994). There is also evidence that, for executives leaving their employers to accept high-level positions elsewhere, the average market reaction to the job change is negative for the firms the executives leave and positive for the firms

they join (Hayes & Schaefer, 1999). Other studies do consider the effect of firm size and measure transferable skills of managers directly. While some findings show that large firms perform better because they select their managers by transferable skills and pay higher compensation (Veliyath *et al.*, 1994), other studies find no evidence that the greater focus on transferable skills in large firms improves performance (Rost & Osterloh, 2009a). In line with the managerial efficient labor market view, the following hypothesis will be tested.

Hypothesis 5. Increasing firm size goes along with higher outside options of managers due to transferable skills and thus increases firm performance.

Figure 2 summarizes the former hypotheses. The basic premise is that today's business managerial competition is characterized by higher outside options due to transferable skills (H1, $\max\{w, \psi(a)\}$). Higher outside options due to transferable skills increase management compensation (H2, *w(a)*). Larger firms attract managers with higher transferable skills and thus higher outside options (H3, *n(a)*). The link between firm size and outside options due to transferable skills not only raises management compensation (H4, *w(n,a)*) but, due to the selection of better managerial talent, also contributes to firm performance (H5, $\pi(n,a)$).

Insert Figure 2 about here

Method

Sample

To test these hypotheses, we rely on the Swiss banking sector. The Swiss banking industry has a long tradition of self-regulation, i.e. Swiss banks draw up binding codes of conduct which define what constitute good industry practices. The Swiss Financial Market Supervisory Authority (FINMA), which derives its authority from a series of federal statutes, monitors the banks' compliance with these codes of conduct. Compliance with suggested guidelines, however, is voluntary. Internationally, the Swiss banking sector plays an important economic role and consists of companies of three languages regions, i.e. German, French, and Italian. The Swiss banking system is based on the concept of universal banking whereby all banks can offer all banking services, such as credit and lending services, asset management and investment advice, payment transactions, deposits, securities, underwriting businesses and financial analysis, ensuring the transferability of managerial capital. Finally, banks in Switzerland have a two-tier board structure, i.e. a director can be either a member of the executive or the supervisory board. Yet, in the managerial labor market, both types of positions are difficult to separate. It is common that executive managers hold supervisory positions in other banks, or that managers of the supervisory board started their early career as executive members, suggesting that executive and non-executive directors form one labor market. In the following, we will speak about top management team (TMT) members. We define a TMT member as a member either of the executive or non-

executive board (for more details on the discussion what constitutes TMTs see Carpenter *et al.*, 2004).

The sample offers the following advantages. First, the Swiss banking sector is one homogenous labor market, and all Swiss banks offer a comparable business concept, ensuring the transferability of managerial capital. Second, the Swiss banking sector is internationalized and deregulated, ensuring strong competition in the managerial labor market. Third, the included TMT members have different hierarchical positions, ensuring variance in managerial talent. Fourth, the considered banks are heterogeneous with respect to firm size, ensuring that managerial talent can match to large firms. Finally, due to the small size of Switzerland, it is possible to manually collect clean data.

We collected individual background data on all TMT members working for all 30 banks quoted on the Swiss Exchange (SWX). The two biggest banks of the sample, i.e., UBS AG and Credit Suisse Group, together amount for over 50% of the balance sheet total of all banks in Switzerland. 10 banks in the sample are cantonal banks which, to a large extent, are owned by the canton (comparable with a federal state) and managed under a public performance mandate. We obtained data from the period 2004-2008.[5] From company reports and curriculum vitae, we manually collected data on all 688 TMT members working within those five years for at least one of the 30 banks. Data were obtained by using company reports, trade registers and the internet. We collected data on their demographics, their former educational and professional careers and their current board and affiliation memberships. The names of persons, universities, former employers, companies and affiliations were manually recoded for various spellings, misspellings and different languages. The final sample consists of 627 persons (61 were excluded due to missing information), leading to 4997 observable person-years for the survival analysis. For the fixed-effect analysis, the data set includes information on 150 firm-years consisting of 2327 person-years. Company data were obtained from DATASTREAM.

Measurements

Measurements of the survival analysis

Survival probability in firms. For TMT members working from 2004-2008 for one of the banks, we coded the date of joining the TMT and, if available, the date of leaving the TMT. Survival time is coded in years. Overall we obtain 4997 years of TMT tenure. From the 627 included persons, 189 persons – 30.14% - left the TMT within the observed time period. 205 persons – 32.69% - entered the TMT within the observation period.

Transferable skills determining the survival probability in firms are measured by the amount of transferable human capital, social capital, international experience, and operational experience. Prior studies often measured transferable skills by differentiating whether managers are promoted from inside or hired from outside

[5] Listed companies in Switzerland are, since 2002, required to publicly disclose information on salaries, corporate governance, etc. In particular, in 2002 and 2003, many companies were insufficient in publishing this information.

(Zhang, 2008). Beside definition problems, such as after which time period do managers become insiders, the index tells nothing about the actual amount of transferable skills. It seems reasonable to assume that, due to their prior experience, managers coded as insiders may have still accumulated a high amount of transferable knowledge or that managers coded as outsiders may have only accumulated a low amount of transferable knowledge. For both reasons, we decided to apply more fine-grained measurements.

Human capital. Human capital refers to the stock of competences and knowledge embodied in the ability to perform labor so as to produce economic value. It is the attribute gained by a worker through education and experience (Becker, 1964). In line with this definition, human capital is measured by historical data from the universities where the TMT members were educated and from their former employers. Transferable, general human capital considers it to be a fungible resource – homogeneous and easily interchangeable (Becker, 1964).

To measure the homogeneity and interchangeability of human capital, we rely on the closeness centrality of educational institutions of TMT members in knowledge spillover networks (Jaffe *et al.*, 1993). Knowledge spillover is captured by the past behavior of persons switching between educational institutions. A high closeness centrality indicates the knowledge acquired in these institutions is homogeneous and easily interchangeable (Perry-Smith & Shalley, 2003). For each person, we counted the centrality of the institutions with which she/he was affiliated in the past. Higher scores are taken as an indication of higher transferable human capital, accumulated due to prior education or work experience. Mathematically, the closeness centrality measures the average distance of a focal actor to other actors within the network through direct or indirect relationships (Freeman, 1979). As shown in figure 3, actors with a high amount of direct relationships to other actors do not inevitably have a high closeness centrality. In the figure, the actors B, G, M have the highest closeness centrality, whereas the actors A, B, C have the highest amount of direct relationships.[6]

Insert Figure 3 about here

Overall the 627 included persons were educated in 446 different national and international universities, and have worked for 2,274 different national and international prior employers. On average, for every TMT member we obtain 1.4 universities (max. 6) and 2.6 prior employers (max 12), which allows building networks upon the switching behavior of persons between universities and prior employers. Apart from some isolated institutions, the networks consist of one large network component, suggesting that all institutions are directly or indirectly connected to each other. These networks allow the calculation of centrality measurements. The closeness centrality of universities and of former employers is, for both networks, calculated separately. Isolated institutions received the value 0. For every person, we finally

[6] The measurement is thus less dependent on quantity aspects of knowledge flows, but more on quality aspects. It ensures that the size of an organization, which could only reflect supply aspects of knowledge, is downplayed by the index.

calculated the zero-skewness logarithms of the sum of the closeness centralities of his/her universities, respective of his/her former employers. Higher scores indicate that a person has accumulated higher transferable human capital.

The former indices compare the transferable human capital of TMT members with all labor market peers. Typically, outside options are also dependent on social comparison processes with firm peers (O'Reilly *et al.*, 1988). For each TMT member, we additionally calculated his/her differences in transferable human capital compared to his/her direct competitors within a firm. We define direct competitors as all persons who entered the board from outside, i.e. newcomers at a time when the TMT member was already an insider and still employed. The definition considers that, for managers, the external labor market has a greater impact on managerial competition, i.e. the abilities of insiders are compared with the abilities of persons hired from outside.

Social capital. Social capital is understood as an individual resource generated by networks of relationships that facilitates certain actions of actors within the marketplace so as to produce economic value (Coleman, 1990; Lin, 1999). Similar to human capital, there exists different forms of social capital, e.g. bonding or bridging social capital (Adler & Kwon, 2002). While bonding social capital relies on intra-group relationships, e.g. on relationships inside the firm, bridging social capital relies on inter-group relationships, e.g. on relationships outside the firm. Transferable, general social capital considers it to be a fungible resource outside the firm-specific context. Transferable social capital is therefore defined as individual bonding social capital. Relationships of TMT members outside the firm-specific context are transferable to other firms.

We use data on current affiliation membership, i.e. for the years 2004-2008, we obtained membership data for each director. Underlying this is the assumption that persons with rich contact networks enjoy information (access, timing, referrals) and control (tertius gaudens) benefits (Burt, 1997). These benefits may have a strategic value for firms and managers (Castanias & Helfat, 2001; Geletkanycz *et al.*, 2001; Lin, 1996). Affiliations are defined as board memberships in profit and in non-profit organizations, e.g. in trade, educational, policy, social welfare, cultural associations or pension funds. We selected three measurements which capture different aspects of social capital. First, we measure the number of affiliations a director is connected with. Persons who have access to different organizations gain a diverse and rich set of first-hand information, e.g. on economy, politics, culture, or society (Perry-Smith & Shalley, 2003). However, maintaining many different affiliations does not automatically imply that other peers can be accessed. Labor market peers may be not members of these organizations. Therefore, our second measure is of the number of labor market peers which can be reached via affiliation memberships. Persons connected with many labor market peers have better first-hand access to strategic, relevant information on their direct working environment. It allows the reflecting of current market developments, the discovering of new market trends, or the exercising of control on other actors. Third, we include a measurement to capture a TMT member's position within the whole labor market

network. According to structural hole theory, for individual success, it is better to have some connections to a variety of networks, rather than many within a single network (Burt, 1992). Persons with connections to a variety of networks or a high amount of structural holes can exercise influence or act as brokers within their social networks by bridging networks that are not directly linked. For each TMT member, we measure his/her amount of structural holes in his/her peer networks. Figure 4 gives an example of two ego-networks in our sample. The figures show how a focal TMT member is connected to other TMT members of the labor market due to affiliation memberships. The left ego-network is rich in structural holes because the focal person bridges three networks, whereas the right ego-network is weak in structural holes because all contacts of the ego-network can reach each other without crossing the focal actor.

Insert Figure 4 about here

Overall the 627 included persons of our sample are affiliated with 1,734 organizations (1,036 profit organizations, 671 non-profit organizations) and form a dense network consisting of one component. On average, every TMT member is affiliated with 4.3 organizations (max 30) and, via these affiliations, reaches 202.1 persons in the labor market (max 4605). For every person, we calculated the logarithms of his/her number of affiliation memberships, the logarithms of the number of persons which can be reached via affiliation memberships (Freeman degree centrality), and the amount of structural holes within his/her network indicating a brokerage position in the labor market market (Burt, 1992). Structural holes are measured through a combined measurement labeled “Indirect” (Borgatti *et al.*, 2002). Higher values indicate a higher amount of structural holes, since the index positively correlates with the effective size of the ego's network and negatively with Burt's constraint measures. As before, we additionally measure the social capital of a TMT member compared with his/her direct competitors by calculating for each TMT member his/her differences in transferable social capital, compared to newcomers entering the TMT.

International experience. National experience refers to the stock of competences and knowledge embodied in the ability to understand the cultural characteristics of one market so as to produce economic value. It is the attribute gained by a worker through living and working in a national culture. In line with this definition, national experience is measured using the nationality of each TMT member. In contrast, international experience is the attribute gained by a worker through living and working in many national cultures. It is a fungible resource because it has value in many marketplaces. The increasing involvement of enterprises in international markets typically demands persons who understand international markets, i.e. domestic firms increasingly substitute national managers with foreign managers (Carpenter *et al.*, 2000; Daily *et al.*, 2000; Staples, 2007). Foreign managers in domestic firms have accumulated transferable international experience because they combine the knowledge of their home market with knowledge of the new foreign market.

We dichotomized the data, indicating whether a TMT member has a national background (1=Swiss) or an international background (0=foreigner).[7] The majority, i.e. 86% of the 627 persons, has a national background. We further measure the international experience of a TMT member compared with his/her direct competitors. For national TMT members, we measure the percentage of newcomers with a foreign background. For foreign TMT members, we measure the percentage of newcomers with a national background.

Operational experience. Operational experience refers to the stock of competencies and knowledge embodied in the ability to perform specialized tasks within the company so as to produce economic value. In line with this definition, operational experience is measured by the function of a person in a TMT. Transferable, general operational experience considers it to be a valuable resource for many companies and industries. According to tournament theory, persons with a higher and/or rare position in the hierarchical ladder have demonstrated that they are better (Lazear & Rosen, 1981). According to status attainment theory, persons with higher and/or rare positions have access to more valuable resources (Lin, 1999). Both theories imply that persons with a higher and/or rare position in TMTs have acquired higher amounts of transferable operational experiences, i.e. better persons, respectively persons with more resource access, are valuable for other firms and industries.

For each person, we measure whether the person is a CEO (=1), a board chair (=1), a vice-CEO or vice-board chair (=1), an executive (=0) or non-executive member (=1), a member of the audit (=1), compensation (=1), nomination (=1), risk (=1), corporate responsibility (=1), or strategy (=1) committees. We further include three measurements indicating the position of a TMT member compared with his/her direct competitors. For executive TMT members, we measure the percentage of newcomers who are non-executive TMT members. For non-executive TMT members, we measure the percentage of newcomers who are executive TMT members. For every TMT member, we measure his/her hierarchical differences as compared to newcomers, with positive values indicating more operational experience and negative values indicating less operational experience.

Control variables. We control for demographic characteristics. According to the theory of upper echelons, demographic characteristics have an impact on firm performance (Hambrick, 2007; Hambrick & Mason, 1984) and may thus also influence outside options. For example, in recent years, the hunting for young talents has reduced the average age of top executives (Backes-Gellner & Veen, 2009; Buck & Dworschak, 2003). We control for the age of persons by contrasting persons of the age peer groups 1925-40 (=1), and 1941-60 (=1) against persons of the age group 1961-and younger (=0). Women may be less in demand than men because they are relatively more averse to risk than men (Barber & Odean, 2001; Eckel & Grossman, 2002; Fehr-Duda *et al.*, 2006; for a more detailed discussion see Rost & Osterloh, 2008b). We control for the gender of

[7] 4.2 % of the foreigners are US citizens and 3.0% UK citizens. 8.0% are European citizens, whereas most persons come from Germany (1.88%), the Netherlands (1.24%), France (1.14%), and Belgium (.64%).

persons (0=female, 1=male). Persons with an economic background may be more in demand than persons with an non-economic background because the literature assumes that transferability of economic knowledge is higher (Murphy & Zábojník, 2007). We control for the acquired economic knowledge of persons, measured by an economic education (=1). On the firm level, we further control for firm size, measured by the logarithms of total assets, and ownership type, measured by a variable indicating whether the bank is majority owned by the canton (=1) or not.

Measurements of the fixed-effect analysis

Outside option due to transferable skills (managerial competition). For each TMT member, we predict his/her hazard rate, i.e. his/her risks of leaving the bank due to his/her amount of transferable skills. By employing survival analysis, we made separate predictions for the amount (1) of human capital, (2) of social capital, (3) of international experience, and (4) of operational experience by only including the variables of interest, without considering other variables. For each type of transferable skill, we consider the measurements introduced in the former section. We subsequently match these data in a panel data set. On the firm level, for every year we include the risk scores of all persons which were employed for a bank within this year. Thus, on the firm level, the data does change over time because TMT composition changes, i.e. some persons leave while other persons enter the bank.

Management compensation per member. Management compensation is measured on the firm level as the logarithms of the yearly total compensation per TMT member[8]. Pay figures comprise basic salary, variable pay, including bonuses and long-term share plans, and other payments, e.g. contributions to pension schemes. Compensation data were not industry-adjusted, as we focus on one industry sector. Figure 5 visualizes the development of management compensation in our sample. From 2004 to 2008, the compensation per TMT member has nearly tripled. In 2004, a board member of a Swiss bank earned, on average, 280 Tsd SFR. In 2008, board members earned on average 658 Tsd SFR. The figure does however show that the financial crisis had a huge impact on compensation. From 2006 to 2008, compensation has been reduced from 1386 Tsd SFR to 658 Tsd SFR.

Insert Figure 5 about here

Firm size. In former research, firm size has been operationalized by sales, number of employees, or total assets (Tosi et al., 2000). According to the factor analysis of Tosi et al. (2000), total assets are a good indicator of absolute firm size. We measured firm size using the log of each bank's total assets for each year. We tested whether alternative indicators of firm size predict equal results, which were confirmed by the robustness checks.

[8] The use of average compensation data instead of using individual data is meaningful, as the outside options of managers due to transferable skills only vary over time on the firm-level.

Firm performance. There exists within executive compensation literature no consensus about the proper measurement of firm performance (Devers *et al.*, 2007). Finance research strongly supports the conclusion that shareholder wealth maximization should be the definitive criterion (Murphy, 1999). Organizational theorists argue that accounting-based indicators provide better measurements, since executives have a direct influence on them ((Wiseman & Gomez-Mejia, 1998). Since both arguments are convincing, we consider both performance types (Dutta & Reichelstein, 2005). As an accounting-based performance measure, we selected the yearly earnings before interest and taxes (EBIT). We include the yearly Tobin's q as a combined measurement of financial- and accounting-based performance. Tobin's q is defined as the ratio of the market value of a firm to the replacement cost of its assets (Tobin & Brainard, 1968). To measure financial based performance, we selected the yearly total shareholder return (TSR) and the market value of a company (MVC). This measurement can also be interpreted as a measurement of firm size. However, as we control for firm size, the remaining variance is an indication for financial performance (Jensen & Murhpy, 1990).

Control variables. As we predict changes within a firm over time, we only consider time dummies as control variables. This procedure is in line with former executive compensation research (Murphy, 1999).

Analysis

The data set of the survival analysis consists of 627 persons leading to 4997 observable person-years. We predict the survival probability of TMT members in firms by using Weibull regressions, which assume monotonic decreasing survival probabilities. We check the robustness of the results by additionally calculating log-logistic, log-normal and exponential regression models, which take as a basis slightly different probability distributions, e.g. bell-shaped or shortly increasing and later decreasing probabilities.

The data set of the fixed effect panel analysis includes information on 150 firm-years consisting of 2327 person-years. The data are grouped on the firm level, i.e. on the 30 banks. The fixed effect panel models predict within-firm-changes in TMT member compensation, and firm performance using within-regression estimators.

Results

Survival analysis

Table I in the appendix documents the bivariate correlations between the independent variables included in the survival analysis. We tested whether the inclusion of highly correlated variables causes multicolinearity problems. The exclusion of critical variables did not change the results. Table 1 reports the findings of the survival analysis, applying a Weibull model. Other estimation techniques, i.e. the log-logistic, the log-normal, or the exponential model, show equal results. In the following, we only refer to the results of the Weibull regression. In Table 1, negative coefficients indicate lower survival

probabilities, and thus, higher outside options, whereas positive coefficients indicate higher survival probabilities, and thus, lower outside options.

Human capital. The results indicate that the transferability of accumulated prior work experience has significant effects on outside options, whereas the transferability of accumulated prior university knowledge has no effects on outside options. The findings show that TMT members who have accumulated higher transferable human capital due to prior work experience compared to all market peers (-.23***) and compared to their direct competitors (-.12**) have a significant lower survival probability in TMTs, indicating higher outside options. For example, after 10 years board tenure, TMT members with transferable human capital one standard deviation above the market average survive with a probability of 50%, whereas TMT members with transferable human capital one standard deviation below the market average survive with a probability of 85%. Similarly, after 10 years board tenure, TMT members with transferable human capital one standard deviation above their competitors survive with a probability of 60%, whereas TMT members with transferable human capital one standard deviation below their competitors survive with a probability of 75%. These findings support Hypothesis 1 by showing that managers with higher transferable human capital have more outside options.

Social capital. The findings show that most social capital measures have no effect on outside options. The access to labor market peers and the amount of structural holes have no significant impact on outside options. The results however do indicate that social affiliations outside the company are important. TMT members who are affiliated with more organizations compared to their competitors (-.60***) have lower survival probabilities in TMTs. After 10 years board tenure, TMT members having one standard deviation more affiliations than their competitors survive with a probability of 50%, whereas TMT members having one standard deviation less affiliations survive with a probability of 80%. This result supports Hypothesis 1 by showing that managers with higher social capital have more outside options.

International experience. The findings support that Swiss TMT members have lower outside options compared to foreign TMT members (1.01***). After 10 years board tenure, foreign directors survive with a probability of 20%, whereas Swiss directors survive with a probability of 75%. The results further show that international competition in TMTs increases the outside options of TMT members. Swiss TMT members in competition with international managers have more outside options (-.79**). After 10 years board tenure, a Swiss manager in competition with foreign managers survive with a 43% lower probability compared with a Swiss manager in competition with Swiss managers. Visa versa, foreign TMT members in competition with national managers have lower outside options (.95***). After 10 years board tenure, a foreign manager in competition with Swiss managers survive with a 25% higher probability compared with a foreign manager in competition with foreign managers. In line with the efficient labor market view, the results can be interpreted as an indication that the valuable experiences of international competition increase outside options.

Overall the results support Hypothesis 1 by showing that the international experiences of managers increases outside options.

Operational experience. Members of the corporate responsibility committee (-.65*) and executive TMT members (-.47†) have higher outside options. After 10 years board tenure, TMT members of the corporate responsibility committee survive with a 35% lower probability compared with managers who are not members. Similarly, after 10 years TMT tenure, executive TMT members survive with a 15% lower probability compared with non-executive TMT members. The findings support Hypothesis 1 by showing that certain operational experiences increase outside options.

Control variables. The results support that male TMT members have higher outside options than female TMT members (-.34†). In contrast to the assumption that TMT members with an economic background have higher outside options, the results indicate the opposite (.21***). This finding is, however, in line with diversity research, which argues that, in particular, the demand for persons with diverse backgrounds is increasing (Knight *et al.*, 1999).

To sum up, the findings give support for Hypothesis 1. Higher transferable skills increase the outside options of managers.

Insert Table 1 about here

Fixed effect analysis

Table II in the appendix documents the descriptive statistics of the time series data. The table shows that the data contain sufficient within-group variance, i.e. changes on the firm level, which is crucial in applying fixed-effect models. Table III in the appendix documents the cross-sectional, bivariate correlations between the variables.

Table 2 tests whether the rise in TMT compensation can be explained by changes in firm size and managerial competition. Model 1 predicts TMT compensation by firm size. In line with prior research, the results show a strong, positive impact of changes in firm size on changes in compensation (.53***). The Likelihood-ratio test supports that firm size explains a large variance of TMT compensation (95.90*** (df1)). Model 2 additionally includes the outside options of managers due to their amount of transferable skills. The findings indicate that outside options can explain the rise of TMT compensation to some extent. The Likelihood-ratio test, however, reveals that the additional explained variance is rather small (13.28** (df4)). In detail, Model 2 supports Hypothesis 2 by showing that higher outside options due to transferable human capital raises compensation (.62*). However, the results also show that outside options due to social capital or operational experience have no significant impact on compensation, and that outside options due to international experience have the impact of even lower compensation (-52*). These findings give no evidence for Hypothesis 2. In particular, the result that TMT members with no outside options due to international experience see a rise in their wages contradicts the efficient labor market view.

Insert Table 2 about here

Table 3 reports the results to test Hypothesis 3, suggesting that the outside options of managers increases with firm size. The findings show that increasing firm size goes along with higher outside options of managers, due to transferable human capital (.01***), social capital (.01***), international experience (.01***), and operational experience (.01***). The Likelihood-ratio tests support that firm size explains a large variance of outside options (16.26***, 22.15***, 8.92***, 10.65**(df1)). Hypothesis 3 is thus confirmed by the data: TMT members of large firms have more outside options due to their higher amount of transferable skills.

Insert Table 3 about here

Table 4 documents the findings to test Hypothesis 4, i.e. whether higher outside options of TMT members in large firms explain the rise in management compensation. The table reports the main effects of changes in firm size and outside options on changes in compensation by additionally including the interaction effects between changes in firm size and outside options. The results show that, in larger firms, higher outside options of TMT members due to human capital (1.03***), social capital (.90**), and operational experience (.40***) significantly raise compensation. The Likelihood-ratio tests support that the link between firm size and outside options largely improves the explanatory power of the models (51.00***, 23.25**, 8.85***(df1)). It supports Hypothesis 4. The result for international experiences, however, contradicts Hypothesis 4 by indicating that in larger firms, lower outside options due to international experiences raise compensation (-.18†), i.e. Swiss TMT members or TMT members not in competition with foreign managers increase their compensation. Table 4 also shows that more outside options of managers of large firms can only explain to some extent the huge effect of firm size on executive compensation. The main effect of firm size on compensation shows only weak changes, even though the models explicitly consider the link between outside options and firm size.

Insert Table 4 about here

Tables 5-8 test whether the greater outside options of TMT members of large firms are an indication for managerial talent. Hypothesis 5 assumes that more outside options in large firms increase firm performance. Even though the analysis considers four alternative performance measurements, the EBIT (Table 5), the TobinsQ (Table 6), total shareholder return (Table 7), and the market value of the company (Table 8), we find only a few significant effects. It is supported that, in large firms, the greater outside options of managers due to transferable human capital only weakly increases EBIT (1.26†; see Table 5) and Tobins Q (.17†; see Table 6). The higher outside options of managers of large firms due to their international or operational experiences have no effects on productivity. With respect to total shareholder returns, the opposite is obtained. In larger firms, higher outside options of managers due to transferable human (-.23*) and social capital (-.27†) shrink shareholder returns (see Table 7). It suggests

that shareholders of big companies profit more from the firm-specific investments of managers and not from transferable skills. We also tested whether the results in Tables 5-8 change if next year firm performance is included. The results are comparable (no tables). To sum up, for the greater part, Hypothesis 5 is not supported by the data - more outside options of managers of large firms do not increase firm performance.

Insert Table 5-8 about here

Discussion and conclusion

Discussion and future research

The empirical analysis mostly supports hypotheses 1, 3, and 4. The findings show (a) that transferable managerial skills increase the outside options of managers, (b) that larger firms employ managers with more outside options due to transferable managerial skills, and (c) that higher outside options due to transferable managerial skills in particular increase management compensation in large firms. Hypotheses 2 and 5 were rejected by the data. The findings show no evidence (a) for a compensation of transferable skills independent of firm size and (b) for performance increases in large firms due to higher transferable managerial skills.

Overall, the efficient labor market view is thus not supported by the data. On the one hand, the results show that transferable managerial skills increase management compensation in large firms. In large firms, outside options arising due to transferable human capital, social capital, international experience, or operational experience are highly paid. On the other hand, while these outside options are valuable for managers of large firms, they are not for the company itself. The missing link on performance suggests that large firms are not selecting better managerial talent. The efficient labor market view, however, assumes that the selection strategy of large firms is caused by performance considerations, by the "war for talent".

The missing evidence between outside options in large firms and firm performance should be investigated by further research. While this finding contradicts the efficient labor market view, it is in line with other prior findings. For example, in contrast to the result of Murphy and Zábojník (2007), some studies find no evidence that the amount of outside hires is increasing since the 1990s (Cremers & Grinstein, 2009). Industry wide, only 14% of the new CEOs are hired from outside. The result contradicts the efficient managerial labor market model, but is in line with scholars who argue that CEO talent is not always easy to substitute, because managers need to have firm- or industry-specific knowledge (Becker, 1975; Bertrand & Schoar, 2003).

The missing evidence between outside options in large firms and firm performance in particular offers room for the entrenchment view. It could be caused by the fact that managers of large firms justify their pay by more outside options due to transferable skills. The entrenchment view argues that with internationalization, deregulation and worldwide competition, external and internal governance mechanisms have become

ineffective in protecting shareholders sufficiently against the misuse of managerial power (Bebchuk & Grinstein, 2005). The market for management control works inefficiently, since hostile takeovers of enterprises are costly undertakings. Even in the liberal financial markets of the USA and Great Britain, they do not often happen and are practically non-existent in other countries. “Golden parachutes” in cases of dismissal may also act as a substantial hurdle. Further, internal control mechanisms, in particular the board of directors, are limited in their function as a controlling body. The increase of agency problems manifests itself in the fact that managers more and more determine their own compensation (Bebchuk & Fried, 2004; Bebchuk *et al.*, 2002). Two well documented empirical findings are brought forward to substantiate the increase of managerial power. First, firm performance is only weakly reflected in executive compensation ((for empirical evidence see Rost & Osterloh, 2009b; Tosi *et al.*, 2000), indicating “pay without performance” (Bebchuk & Fried, 2004). Second, firm size is highly correlated with executive compensation (for empirical evidence see Tosi *et al.*, 2000), indicating empire-building to trigger one's own compensation (Sudarsanam, 1995).

Future research could analyze whether management entrenchment explains the missing evidence between outside options in large firms and firm performance. If outside options due to transferable skills in large firms are only used to legitimize higher compensation at the top, the effects on executive compensation should be influenced by moderators or mediating processes measuring the productivity of managers more directly, as compared to firm performance. The literature has discussed managerial discretion (Bantel, 1993; Hambrick & Finkelstein, 1987), executive job demands (Hambrick *et al.*, 2005), or behavioral integration (Li & Hambrick, 2005; Lubatkin *et al.*, 2006; Simons *et al.*, 1999) as productivity indicators of managers. Further, it has been shown that firm performance is also affected by mediating processes like a TMT’s social behavior, i.e. communication, decision making, consensus, or conflict (Knight *et al.*, 1999; Li & Hambrick, 2005; Simons *et al.*, 1999; Smith *et al.*, 1994). In contrast to firm performance, these moderators and mediators capture the productivity of managers by measuring managerial behaviour. According to the entrenchment view, in particular managers with a low productivity are still able to justify their pay. Further research could therefore test how outside options in large firms affect management compensation if direct measurements of the productivity of managers are additionally considered. For managers scoring low in productivity, indicators on should expect higher effects of outside options in large firms on management compensation compared to managers scoring high in productivity indicators. Such evidence would confirm the entrenchment view by showing that managers of large firms have more opportunities to justify their pay.

Limitations

Our study did not measure the entrenchment view, but instead focused on the efficient labor market view. We are therefore not able to show whether the rise in executive compensation is explained by management entrenchment. A second limitation is the

focus on the Swiss banking sector. Even though this labor market is internationalized and deregulated, the findings may be not transferable to other industries or other countries. A third limitation is that we only included a time period of 5 years to examine the rise of executive compensation. Most European researchers face an equal problem, since data on executive compensation are only recently available. A longer time period would be desirable. Fourth, development of improved measurements to capture transferable skills would be helpful.

Conclusion

The rise in executive compensation has triggered a great amount of public controversy and academic research. Critics have referred to the salaries paid to managers as "pay without performance", while defenders have countered that the large salaries can be explained by the "war for talents". Our research has tested whether the war for talent is an explanation for the rise in management compensation. The findings confirmed that transferable managerial skills in large firms are an explanation for the rise in management compensation. The results, however, did not confirm that transferable managerial skills in large firms improve firm performance. According to the findings, there is no support for a "war for talents".

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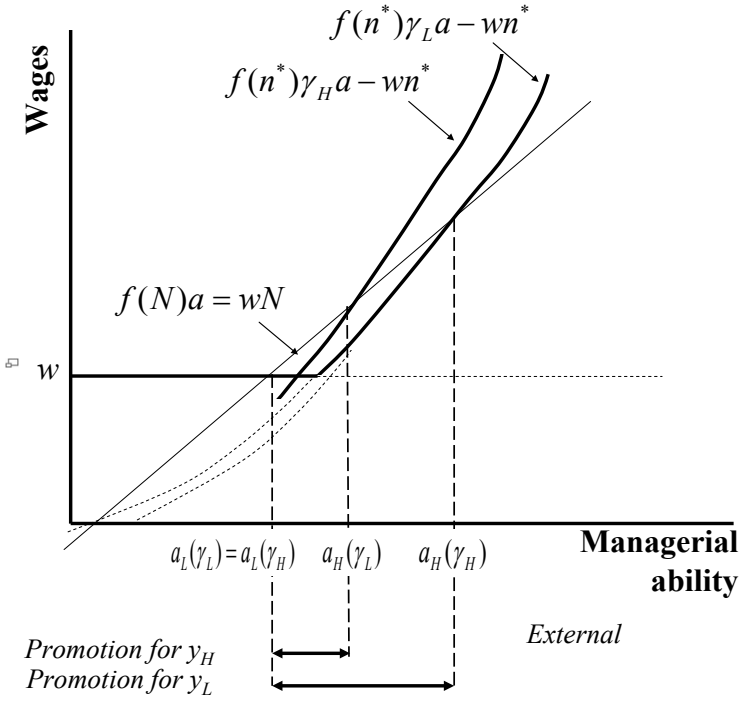
Figure 1. Market shift for transferable managerial skills and increase in wages



Source: Murphy and Zábojník (2007). Figure 1 illustrates the effects of an increase in y on managerial wages and on promotion decision for a firm of size N. As y increase from y_L to y_H, the wage function shifts upward from $w(a, y_L)$ to $w(a, y_H)$ while the "promotion range" $(a_{H,}, a_{L,})$ shrinks.

Figure 2. Summary of the hypotheses

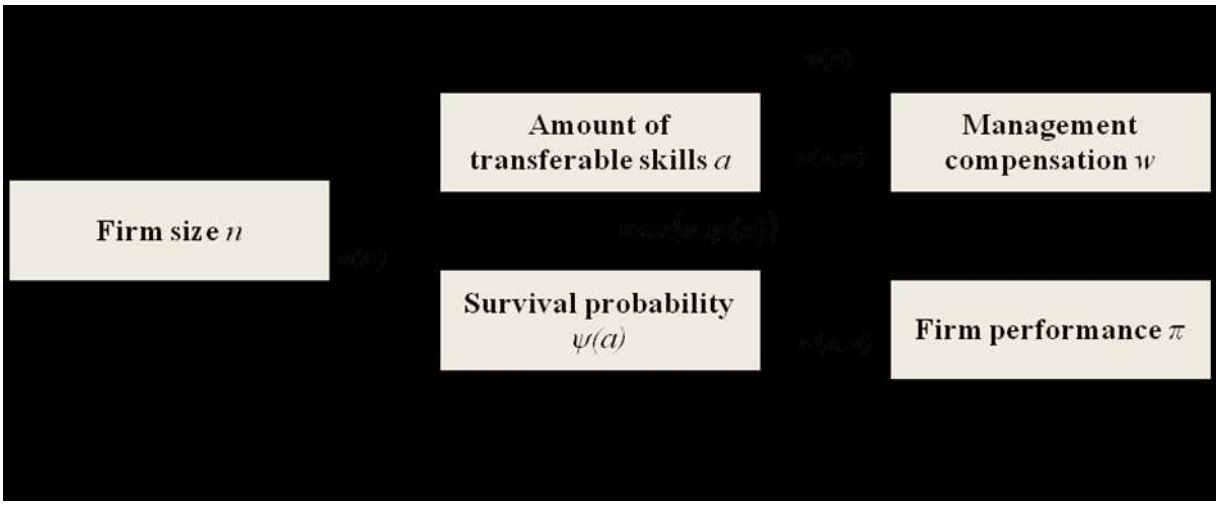
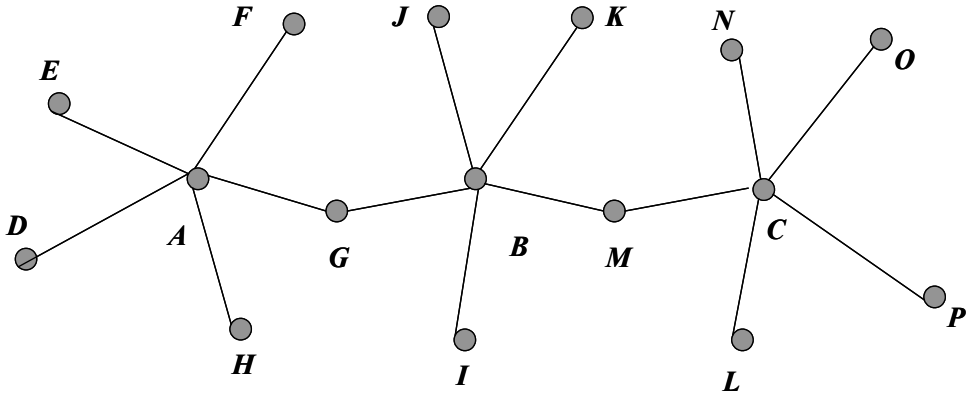
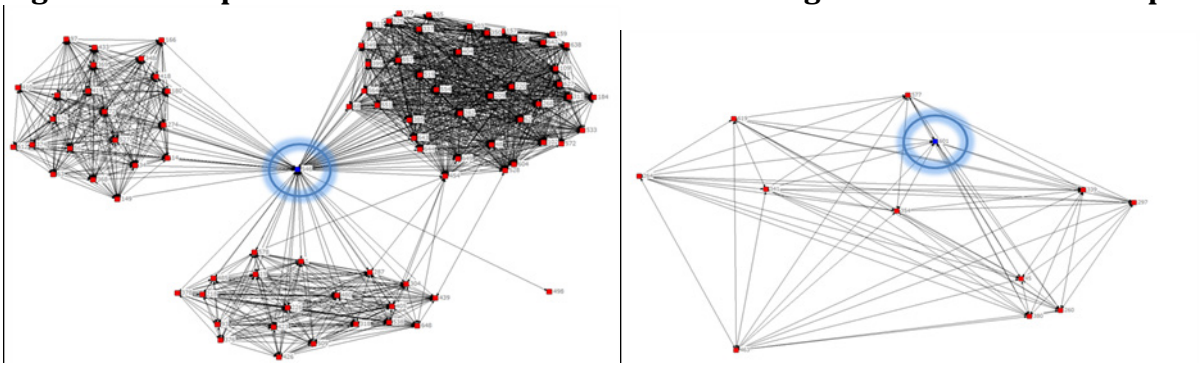


Figure 3. Example of closeness centrality



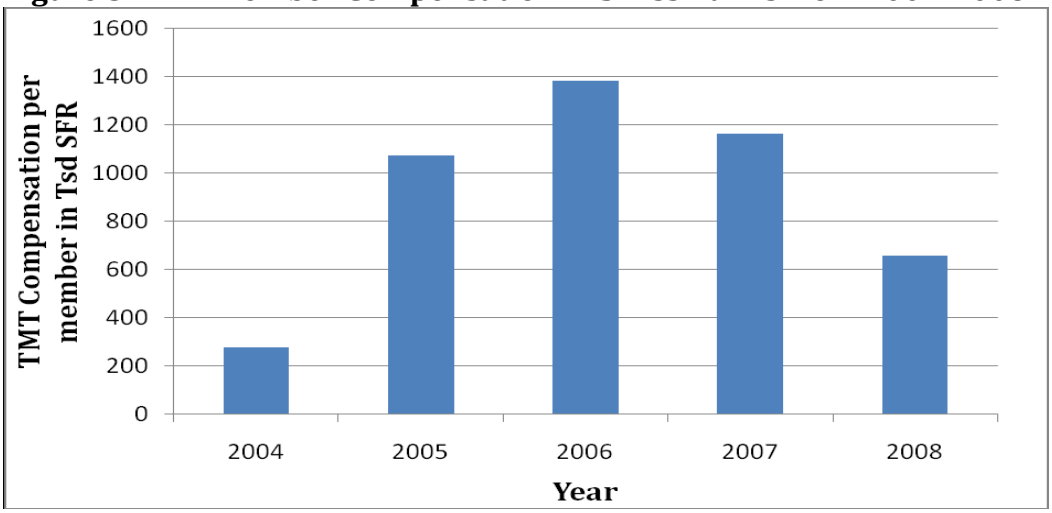
Source: Perry-Smith & Shalley (2003: 96)

Figure 4. Example of structural holes based on of two ego-networks of the sample



Legend: Focal actors are marked by the circle. Relationships to other actors are achieved by sitting together in the board of an organization. The left ego-network is rich in structural holes, i.e. the manager has a good broker position in his network because most of his/her direct contact can only reach each other through the manager, i.e. he/her cannot bypassed. The right ego-network includes no structural holes, i.e. the manager has no unique access or control because all persons of his/her network can reach each other directly, i.e. he/her can be bypassed.

Figure 5. TMT Member Compensation in Swiss Banks from 2004-2008



Legend: Pay figures document the yearly total compensation per TMT member comprising basic salary, variable pay including bonuses and long-term share plans, and other payments, e.g. contributions to pension schemes.

Table 1. Transferable skills as determinants of the survival of board members

Dependent variable: Survival time	**Coeff.**	**SE**	**T**	**P**	
Transferable Human Capital					
Market: Closeness Universities	.01	.07	.14	.89	
Market: Closeness Former Employers	-.23	.05	-4.67	.00	***
Competitors: Closeness University	-.02	.06	-.25	.81	
Competitors: Closeness Former Employers	-.12	.06	-2.08	.04	*
Transferable Social Capital					
Market: N Affiliations	-.31	.29	-1.09	.28	
Market: N Persons	.07	.19	.37	.71	
Market: Structural Holes	-.06	.74	-.08	.93	
Competitors: N Affiliations	-.60	.25	-2.42	.02	*
Competitors: N Persons	-.04	.17	-.25	.81	
Competitors: Structural Holes	.18	.14	1.28	.20	
International Experience					
Swiss	1.01	.20	4.94	.00	***
For Swiss: % Foreign Competitors	-.79	.29	-2.69	.01	**
For Foreigners: % Swiss Competitors	.95	.27	3.47	.00	***
Operational Experience					
CEO	.12	.24	.48	.63	
Chairman	.13	.25	.51	.61	
Vize CEO or Chairman	.14	.24	.59	.56	
Executive Member	.28	.21	1.36	.17	
Audit Com. Member	.29	.19	1.50	.13	
Comp. Com. Member	.06	.20	.29	.77	
Nom. Com. Member	.15	.20	.77	.44	
Risk Com. Member	-.02	.16	-.10	.92	
Corp. Resp. Com. Member	-.65	.31	-2.11	.03	*
Strategy Com. Member	.15	.35	.42	.67	
For Executive TMT Members: % of Non-Executive Competitors	-.47	.25	-1.88	.06	†
For Non-Executive TMT members: % of Executive Competitors	.11	.24	.46	.64	
Competitors: Hierarchical Difference	-.12	.23	-.54	.59	
Control Variables					
Age peer group 1925_40	-.08	.24	-.34	.73	
Age peer group 1941_60	.18	.15	1.22	.22	
Male	-.34	.20	-1.69	.09	†
Economic background	.21	.08	2.52	.01	**
Cantonal bank	-.01	.05	-.30	.77	
Firm size	.03	.21	.13	.90	
_cons	2.79	.93	3.01	.00	***
/ln_p	.49	.06	7.96	.00	***
P	1.64	.10			
1/p	.60	.04			
N subjects (clusters)	599 (30)				
N failures	180				
Time at risk	4820				
Log pseudolikelihood	-389				
Wald chi-Sq	887			.00	***

Legend: ***p < 0.001, **p < 0.01, *p < 0.05, †p < 0.10; Weibull regression

Table 2. Explaining the rise in management compensation due to increases in firm size and managerial competition

	Model 1				Model 2			
TMT member compensation (log)	**Coeff.**	**SE**	**T**	**P**	**Coeff.**	**SE**	**T**	**P**
Total assets (log)	.53	.05	9.83	.00 ***	.52	.05	9.70	.00 ***
Outside Options Human Capital					.62	.30	2.09	.04 *
Outside Options Social Capital					.68	.47	1.45	.15
Outside Options Internat. Experience					-.52	.23	-2.25	.03 *
Outside Options Operat. Experience					-.04	.35	-.12	.91
Year Dummies included	Yes				Yes			
_cons	4.01	.88	4.55	.00 ***	4.10	.88	4.66	.00 ***
R-sq (within)	.1892				.1944			
Adj. R-squared	.9277				.9280			
F-value	94.67			.00 ***	54.28			.00 ***
Likelihood-ratio test compared with time dummy model	95.90			.00 ***	109.18			.00 ***
Likelihood-ratio test compared with former model					13.28			.01 **

Legend:

***p < 0.001, **p < 0.01, *p < 0.05, †p < 0.10; Fixed-effect panel regression; N obs (N firms) 2287(30)

R-sq (within) is taken from the Stata output of the fixed-effect panel regression. It is suggested to additionally compute the adj. R-squared by using a linear regression with a large dummy-variable set (areg command). To access the goodness of fixed-effect panel regressions more informative is however the F-value.

Table 3. Explaining the rise in managerial competition due to increases in firm size

Dependent variable:	**Outside Options Human Capital**				**Outside Options Social Capital**				**Outside Options International experience**				**Outside Options Operational Experience**			
	Coeff.	**SE**	**T**	**P**	**Coeff.**	**SE**	**T**	**P**	**Coeff.**	**SE**	**T**	**P**	**Coeff.**	**SE**	**T**	**P**
Total assets (log)	.01	.00	4.01	.00 ***	.01	.00	4.68	.00 ***	.01	.00	2.97	.00 ***	.01	.00	3.24	.00 ***
Year dummies included	Yes				Yes				Yes				Yes			
_cons	-.18	.06	-3.14	.00 ***	-.12	.03	-3.49	.00 ***	-.16	.07	-2.30	.02 *	-.12	.05	-2.37	.02 *
R-sq (within)	.0121				.0117				.0046				.0117			
Adj. R-squared	.2059				.2119				.1715				.0785			
F-value	5.52			.00 ***	5.33			.00 ***	2.06			.06 †	3.26			.00 ***
test Likelihood-ratio test compared with time dummy model	16.26			.00 ***	22.15			.00 ***	8.92			.00 ***	10.65			.00 ***

Legend:

***p < 0.001, **p < 0.01, *p < 0.05, †p < 0.10; Fixed-effect panel regression, N obs (N firms) 2287(30)

R-sq (within) is taken from the Stata output of the fixed-effect panel regression. It is suggested to additionally compute the adj. R-squared by using a linear regression with a large dummy-variable set (areg command). To access the goodness of fixed-effect panel regressions more informative is however the F-value.

Table 4. Explaining the rise in management compensation due to increases in managerial competition with firm size

TMT member compensation (log)	**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**	
Total assets (log)	.46	.05	8.65	.00	***	.48	.05	8.79	.00	***	.53	.05	9.83	.00	***	.50	.05	9.30	.00	***	.46	.05	8.60	.00	***
Outside Options Human Capital	-16.72	2.45	-6.82	.00	***	.58	.29	1.96	.05	*	.57	.30	1.94	.05	*	.58	.30	1.96	.05	*	-14.45	2.92	-4.95	.00	***
Outside Options Social Capital	.87	.46	1.87	.06	†	-14.13	3.13	-4.52	.00	***	.55	.47	1.17	.24	†	.79	.47	1.68	.09	†	-4.84	4.31	-1.12	.26	†
Outside Options Internat. Experience	-.27	.23	-1.16	.25		-.37	.23	-1.59	.11		2.63	1.68	1.57	.12		-.48	.23	-2.09	.04	*	4.96	1.74	2.84	.01	**
Outside Options Operat. Experience	.26	.34	.77	.44		.16	.35	.48	.64		-.10	.35	-.29	.77		-6.42	2.19	-2.93	.00	***	-1.63	2.67	-.61	.54	
Total assets (log)x OutOp_Human	1.03	.14	7.12	.00	***																.88	.17	5.14	.00	***
Total assets (log)x OutOp _Social						.90	.19	4.79	.00	***											.34	.26	1.30	.19	
Total assets (log)x OutOp _Internat.											-.18	.09	-1.89	.06	†						-.30	.10	-3.02	.00	***
Total assets (log)x OutOp _Operat.																.40	.14	2.95	.00	***	.12	.16	.70	.48	
Year dummies included	Yes					Yes					Yes					Yes					Yes				
_cons	5.01	.88	5.71	.00	***	4.81	.89	5.42	.00	***	3.96	.88	4.50	.00	***	4.39	.88	4.97	.00	***	5.01	.88	5.68	.00	***
R-sq (within)	.2142					.2035					.1959					.1979					.2182				
Adj. R-squared	.9297					.9288					.9281					. 9283					.9300				
F-value	55.13			.00	***	51.68			.00	***	49.28			.00	***	49.91			.00	***	43.36			.00	***
Likelihood-ratio test compared with time dummy model	160.27			.00	***	132.43			.00	***	112.83			.00	***	118.03			.00	***	170.81			.00	***
Likelihood-ratio test compared with former model	51.10			.00	***	23.25			.00	***	3.66			.06	†	8.85			.00	***	61.63			.00	***

Legend:

***p < 0.001, **p < 0.01, *p < 0.05, †p < 0.10; Fixed-effect panel regression, N obs (N firms) 2287(30)

R-sq (within) is taken from the Stata output of the fixed-effect panel regression. It is suggested to additionally compute the adj. R-squared by using a linear regression with a large dummy-variable set (areg command). To access the goodness of fixed-effect panel regressions more informative is however the F-value.

Table 5. Explaining the rise in EBIT due to the selection of managerial talent by increasing managerial competition with firm size

Ebit (log)	**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**	
Total assets (log)	-1.20	.26	-4.64	.00	***	-1.26	.26	-4.82	.00	***	-1.26	.26	-4.80	.00	***	-1.22	.26	-4.68	.00	***	-1.25	.26	-4.77	.00	***
Outside Options Human Capital	-1.09	1.69	-.65	.52		-22.09	12.61	-1.75	.08	†	-1.14	1.69	-.67	.51		-1.00	1.69	-.59	.55		-1.18	1.69	-.70	.48	
Outside Options Social Capital	.89	2.74	.33	.75		1.11	2.74	.40	.69		-23.62	18.59	-1.27	.20		1.18	2.76	.43	.67		1.22	2.75	.44	.66	
Outside Options Internat. Experience	.09	1.29	.07	.95		.32	1.29	.25	.80		.30	1.30	.23	.82		-7.85	7.93	-.99	.32		.13	1.29	.10	.92	
Outside Options Operat. Experience	.03	2.08	.01	.99		.39	2.08	.19	.85		.43	2.10	.21	.84		.10	2.08	.05	.96		-17.19	12.91	-1.33	.18	
Total assets (log)x OutOp_Human						1.26	.75	1.68	.09	†															
Total assets (log)x OutOp _Social											1.49	1.12	1.33	.18											
Total assets (log)x OutOp _Internat.																.47	.46	1.01	.31						
Total assets (log)x OutOp _Operat.																					1.08	.80	1.35	.18	
Year dummies included	Yes					Yes					Yes					Yes					Yes				
_cons	31.78	4.20	7.56		***	32.73	4.24	7.72	.00	***	32.72	4.26	7.68	.00	***	31.99	4.21	7.60	.00	***	32.50	4.24	7.67	.00	***
R-sq (within)	.0281					.0297					.0292					.0287					.0292				
Adj. R-squared	.1364					.1373					.1368					.1364					.1368				
F-value	5.51			.00	***	5.25			.00	***	5.14			.00	***	5.06			.00	***	5.15			.00	***
Likelihood-ratio test compared with time dummy model	23.09			.00	***	25.97			.00	***	24.09			.00	***	24.14			.00	***	24.95			.00	***
Likelihood-ratio test compared with former model	.49			.97		2.88			.09	†	1.82			.18		1.05			.31		1.87			.17	

Legend:

***p < 0.001, **p < 0.01, *p < 0.05, †p < 0.10; Fixed-effect panel regression, N obs (N firms) 2287(30)

R-sq (within) is taken from the Stata output of the fixed-effect panel regression. It is suggested to additionally compute the adj. R-squared by using a linear regression with a large dummy-variable set (areg command). To access the goodness of fixed-effect panel regressions more informative is however the F-value.

Table 6. Explaining the rise in TobinsQ due to the selection of managerial talent by increasing managerial competition with firm size

TobinsQ (log)	**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**	
Total assets (log)	.02	.03	.62	.54		.01	.03	.36	.72		.01	.03	.40	.69		.02	.03	.73	.46		.02	.03	.62	.54	
Outside Options Human Capital	.05	.20	.25	.80		-2.77	1.54	-1.80	.07	†	.05	.20	.23	.82		.03	.20	.14	.89		.05	.20	.25	.80	
Outside Options Social Capital	-.05	.33	-.15	.88		-.01	.33	-.03	.98		-2.70	2.15	-1.26	.21		-.12	.33	-.36	.72		-.05	.33	-.15	.88	
Outside Options Internat. Experience	.10	.16	.65	.52		.14	.16	.89	.38		.13	.16	.82	.41		1.63	.99	1.65	.10		.10	.16	.65	.52	
Outside Options Operat. Experience	-.18	.24	-.77	.44		-.13	.24	-.53	.60		-.14	.24	-.58	.56		-.20	.24	-.84	.40		-.11	1.50	-.07	.94	
Total assets (log)x OutOp_Human						.17	.09	1.85	.07	†															
Total assets (log)x OutOp _Social											.16	.13	1.25	.21											
Total assets (log)x OutOp _Internat.																-.09	.06	-1.57	.12						
Total assets (log)x OutOp _Operat.																					.00	.09	-.05	.96	
Year dummies included	Yes					Yes					Yes					Yes					Yes				
_cons	-1.03	.50	-2.06	.04	*	-.91	.51	-1.80	.07	†	-.93	.51	-1.83	.07	†	-1.09	.50	-2.16	.03	*	-1.04	.51	-2.05	.04	*
R-sq (within)	.2802					.2813					.2808					.2810					.2802				
Adj. R-squared	.6150					.6155					.6151					.6153					.6149				
F-value	95.70			.00	***	86.56			.00	***	86.30			.00	***	86.43			.00	***	86.09			.00	***
Likelihood-ratio test compared with time dummy model	1.36			.93		4.83			.56		2.95			.81		3.86			.70		1.37			.97	
Likelihood-ratio test compared with former model	.89			.91		3.46			.06	†	1.59			.21		2.49			.11		.00			.96	

Legend:

***p < 0.001, **p < 0.01, *p < 0.05, †p < 0.10; Fixed-effect panel regression, N obs (N firms) 2287(30)

R-sq (within) is taken from the Stata output of the fixed-effect panel regression. It is suggested to additionally compute the adj. R-squared by using a linear regression with a large dummy-variable set (areg command). To access the goodness of fixed-effect panel regressions more informative is however the F-value.

Table 7. Explaining the rise in TSR due to the selection of managerial talent by increasing managerial competition with firm size

Total shareholder return (log)	**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**	
Total assets (log)	-.10	.04	-2.77	.01	**	-.09	.04	-2.45	.02	*	-.09	.04	-2.43	.02	*	-.10	.04	-2.82	.01	**	-.10	.04	-2.66	.01	**
Outside Options Human Capital	-.35	.24	-1.46	.14		3.45	1.80	1.92	.06	†	-.34	.24	-1.43	.15		-.34	.24	-1.42	.16		-.34	.24	-1.44	.15	
Outside Options Social Capital	-.32	.38	-.84	.40		-.37	.38	-.96	.34		4.03	2.50	1.62	.11		-.29	.38	-.74	.46		-.34	.38	-.89	.37	
Outside Options Internat. Experience	.07	.18	.40	.69		.02	.18	.12	.91		.03	.18	.14	.89		-.67	1.16	-.58	.56		.07	.18	.38	.71	
Outside Options Operat. Experience	.15	.28	.52	.60		.07	.28	.25	.80		.08	.28	.28	.78		.16	.28	.55	.58		1.24	1.75	.71	.48	
Total assets (log)x OutOp_Human						-.23	.11	-2.13	.03	*															
Total assets (log)x OutOp _Social											-.27	.15	-1.76	.08	†										
Total assets (log)x OutOp _Internat.																.04	.07	.65	.51						
Total assets (log)x OutOp _Operat.																					-.07	.11	-.64	.53	
Year dummies included	Yes					Yes					Yes					Yes					Yes				
_cons	-2.77	.58	-4.78	.00	***	-2.94	.58	-5.03	.00	***	-2.94	.59	-5.01	.00	***	-2.74	.58	-4.72	.00	***	-2.82	.58	-4.82	.00	***
R-sq (within)	.5034					.5044					.5041					.5035					.5035				
Adj. R-squared	.5617					.5624					.5622					.5616					.5616				
F-value	251.92			.00	***	227.54			.00	***	227.25			.00	***	226.71			.00	***	226.71			.00	***
Likelihood-ratio test compared with time dummy model	12.58			.03	*	17.21			.01	**	15.75			.02	*	13.02			.04	*	12.99			.04	*
Likelihood-ratio test compared with former model	3.73			.44		4.62			.03	*	3.17			.08	†	.44			.51		.41			.52	

Legend:

***p < 0.001, **p < 0.01, *p < 0.05, †p < 0.10; Fixed-effect panel regression, N obs (N firms) 2287(30)

R-sq (within) is taken from the Stata output of the fixed-effect panel regression. It is suggested to additionally compute the adj. R-squared by using a linear regression with a large dummy-variable set (areg command). To access the goodness of fixed-effect panel regressions more informative is however the F-value.

Table 8. Explaining the rise in MVC due to the selection of managerial talent by increasing managerial competition with firm size

Market Value Comp. (log)	**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**		**Coeff.**	**SE**	**T**	**P**	
Total assets (log)	1.42	.04	37.20	.00	***	1.42	.04	36.89	.00	***	1.42	.04	37.16	.00	***	1.42	.04	37.16	.00	***	1.42	.04	36.98	.00	***
Outside Options Human Capital	.27	.26	1.06	.29		1.11	1.91	.58	.56		.26	.26	1.00	.32		.26	.26	1.00	.32		.28	.26	1.09	.28	
Outside Options Social Capital	-.27	.41	-.68	.50		-.28	.41	-.70	.48		-.32	.41	-.78	.44		-.32	.41	-.78	.44		-.32	.41	-.77	.44	
Outside Options Internat. Experience	-.15	.20	-.73	.47		-.16	.20	-.78	.43		.88	1.23	.72	.48		.88	1.23	.72	.48		-.15	.20	-.76	.45	
Outside Options Operat. Experience	.09	.30	.31	.76		.08	.30	.26	.80		.08	.30	.27	.79		.08	.30	.27	.79		2.10	1.86	1.13	.26	
Total assets (log)x OutOp_Human						-.05	.11	-.44	.66																
Total assets (log)x OutOp _Social											-.06	.07	-.84	.40											
Total assets (log)x OutOp _Internat.																-.06	.07	-.84	.40						
Total assets (log)x OutOp _Operat.																					-.13	.12	-1.09	.28	
Year dummies included	Yes					Yes					Yes					Yes					Yes				
_cons	-8.38	.62	-13.53	.00	***	-8.42	.63	-13.46	.00	***	-8.42	.62	-13.56	.00	***	-8.42	.62	-13.56	.00	***	-8.47	.62	-13.56	.00	*
R-sq (within)	.4427					.4427					.4428					.4429					.4430				
Adj. R-squared	.9885					.9885					.9885					.9885					.9885				
F-value	194.88			.00	***	175.35			.00	***	175.36			.00	***	175.44			.00	***	175.53			.00	***
Likelihood-ratio test compared with time dummy model	1107.46			.00	***	1107.66			.00	***	1107.71			.00	***	1108.19			.00	***	1108.67			.00	***
Likelihood-ratio test compared with former model	2.09			.72		.20			.65		.24			.63		.73			.39		1.21			.27	

Legend:

***p < 0.001, **p < 0.01, *p < 0.05, †p < 0.10; Fixed-effect panel regression, N obs (N firms) 2287(30

R-sq (within) is taken from the Stata output of the fixed-effect panel regression. It is suggested to additionally compute the adj. R-squared by using a linear regression with a large dummy-variable set (areg command). To access the goodness of fixed-effect panel regressions more informative is however the F-value.

Table I. Bivariate correlations of the independent measurements of the survival analysis

ID	Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	17	18	19	20
1	Market: Closeness Universities (log)	-.02	1.31														
2	Market: Closeness Former Employers (log)	-.17	1.66	.17													
3	Market: N Affiliations (log)	-.09	.59	.16	.12												
4	Market: N Persons (log)	.05	.97	.16	.23	.57											
5	Market: Structural Holes (log)	.04	1.12	.15	.25	.56	.62										
6	For Non-Executive TMT members: % of Executive Competitors	.16	.27	.02	.09	-.35	-.11	-.21									
7	For Executive TMT Members: % of Non-Executive Competitors	.14	.27	-.06	-.17	.15	.06	.09	-.33								
8	Competitors: Hierarchical Difference	-.07	.36	.01	.04	.14	.06	.03	-.04	-.06							
9	For Swiss: % Foreign Competitors	.10	.22	-.16	-.18	-.28	-.20	-.25	.43	.04	-.08						
10	For Foreigners: % Swiss Competitors	.08	.24	.10	-.11	.02	.05	.05	-.02	.18	.02	-.14					
17	Competitors: Closeness University	1.41	1.42	-.54	-.08	-.07	-.11	-.11	.00	.03	-.04	.10	-.12				
18	Competitors: Closeness Former Employers	2.14	1.88	-.13	-.51	-.10	-.18	-.19	-.04	.18	-.02	.21	.08	.21			
19	Competitors: N Affiliations	1.37	.60	-.07	-.05	-.59	-.47	-.45	.23	-.05	-.15	.16	.01	.07	.03		
20	Competitors: N Persons	4.09	1.32	-.15	-.14	-.52	-.56	-.61	.14	.05	-.05	.17	-.01	.13	.23	.58	
21	Competitors: Structural Holes	.49	.20	.01	.01	-.31	-.40	-.38	.03	-.03	-.01	.02	.00	.05	.09	.09	.35
22	Firm size (log)	16.32	2.28	-.02	-.10	.01	-.16	-.13	-.05	.00	.05	.02	.15	.09	.24	.08	.31
23	CEO	.06	.23	-.05	-.10	-.11	-.10	-.09	-.12	.23	-.35	-.01	.03	.05	.09	.05	.04
24	Chairman	.06	.24	-.04	-.02	-.03	.03	.02	.13	-.12	-.45	.04	-.05	.06	-.03	.05	-.06
25	Vize CEO or Chairman	.08	.27	.00	.05	-.06	-.01	.00	.07	-.02	-.43	.03	.00	-.02	-.01	-.01	.11
26	Audit Com. Member	.12	.33	.03	.04	-.05	-.03	-.03	.12	-.18	.01	-.01	-.03	.02	-.04	-.04	.15
27	Comp. Com. Member	.11	.32	-.06	.02	-.02	-.03	-.02	.13	-.17	-.16	.02	.07	.05	-.07	-.07	.12
28	Nom. Com. Member	.11	.32	-.01	.02	-.06	-.08	-.05	.20	-.17	-.22	.10	.06	.01	-.07	-.07	.16
29	Risk Com. Member	.05	.21	.02	.10	-.04	-.03	-.05	.05	-.07	-.02	-.03	-.02	.03	-.08	-.08	.06
30	Corp. Resp. Com. Member	.01	.09	.03	.00	-.01	-.01	-.01	-.02	-.05	.02	.03	-.03	-.08	.00	.00	.03
31	Strategy Com. Member	.03	.18	.06	.12	.02	.04	.03	.08	-.05	-.05	-.03	-.06	-.04	-.16	-.16	.05
32	Executive Member	.55	.50	.07	.19	-.13	-.01	-.01	.49	-.59	-.03	.04	-.06	-.07	-.26	-.26	.33
33	Economic background	.64	.48	.02	-.16	-.05	-.05	-.06	-.10	.13	.00	.04	.06	.08	.23	.23	.03
34	Male	.88	.33	.00	-.05	-.06	-.03	-.04	-.05	.11	-.07	-.04	.03	.08	.09	.07	.03
35	Swiss	.86	.34	-.08	.07	-.05	-.03	-.03	.07	-.05	-.05	.20	-.71	.18	-.07	.04	.03
36	Age peer group 1925_40	.06	.23	.07	.04	.05	.06	.06	.07	-.08	-.04	-.01	-.06	-.08	-.11	-.11	-.05
37	Age peer group 1941_60	.53	.50	.05	-.06	-.11	-.12	-.09	.10	.02	-.05	.03	.04	-.01	.16	.16	.24
38	Cantonal bank	.47	.50	.10	.06	-.12	-.19	-.16	.00	-.03	-.04	.09	-.19	-.01	-.03	-.03	.23

Table I. Bivariate correlations of the independent measurements of the survival analysis

ID	Variable	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
21	Diff. Structural Holes Newcomers	.61																	
22	Firm size	.20																	
23	CEO	.01	-.03																
24	Chairman	-.04	-.05	-.04															
25	Vize CEO or Chairman	.02	-.03	.01	-.07	-.05													
26	Audit com, member	.06	.02	.05	-.10	.09	.05												
27	Comp. com, member	.09	.02	.09	-.07	.28	.19	.11											
28	Nom. com, member	.14	.05	.05	-.09	.29	.18	.10	.69										
29	Risk com, member	.06	.01	.12	-.06	.03	-.01	.16	.01	.01									
30	Resp. com, member	.00	.03	.12	-.02	-.03	.03	-.04	.01	-.04	.05								
31	Strategy com, member	.01	.04	.01	-.05	.11	.10	.22	.26	.25	.11	-.02							
32	Superv. board vs. executive member	.13	.03	-.07	-.26	.22	.11	.31	.28	.30	.15	.09	.12						
33	Economic background	.10	.15	.12	.08	-.06	.01	-.03	-.11	-.18	-.06	.03	-.13	-.19					
34	Male	.05	.02	.07	.02	.05	.01	.04	.06	.00	-.04	.05	-.11	.05					
35	Swiss	-.04	-.33	.00	.09	.05	.04	-.06	.01	.02	-.06	.08	.11	-.06	-.05				
36	Age peer group 1925_40	-.05	-.06	-.02	-.01	.04	.10	.08	.05	.10	.10	-.03	.16	.16	-.08	.02	.08		
37	Age peer group 1941_60	.28	.14	.31	.05	.05	.03	.14	.10	.10	.06	.02	.05	.16	-.01	.08	-.01	-.30	
38	Cantonal bank	.30	.21	-.03	-.03	.04	-.02	.03	-.02	.03	.03	-.03	.03	.11	.06	-.12	.29	-.04	.04

Table II. Descriptive statistics of the time-series data

Variable		Mean	SD	Min	Max	Observations	
TMT member compensation	overall	15.59	1.20	13.90	19.32	N	2287
(log)	between		1.10	14.18	18.81	n	30
	within		.31	14.22	16.66	T-bar	71.10
Total assets (log)	overall	16.48	2.14	11.51	21.60	N	2287
	between		2.04	11.62	21.46	n	30
	within		.19	15.66	17.44	T-bar	76.23
Outside Options Human Capital	overall	.05	.03	.00	.20	N	2287
	between		.01	.02	.07	n	30
	within		.03	-.01	.18	T-bar	76.23
Outside Options Social Capital	overall	.04	.02	.00	.12	N	2287
	between		.01	.02	.06	n	30
	within		.02	-.01	.11	T-bar	76.23
Outside Options Internat. Experience	overall	.05	.03	.00	.25	N	2287
	between		.01	.02	.08	n	30
	within		.03	-.04	.25	T-bar	76.23
Outside Options Operat. Experience	overall	.04	.02	.00	.16	N	2287
	between		.01	.02	.06	n	30
	within		.02	-.01	.18	T-bar	76.23
EBIT (log)	overall	12.33	1.75	8.27	17.19	N	1751
	between		.75	11.31	15.01	n	30
	within		1.63	8.52	16.96	T-bar	60.38
TobinsQ (log)	overall	-.91	.36	-2.61	.11	N	2251
	between		.27	-1.46	-.31	n	30
	within		.26	-2.45	.02	T-bar	75.03
TSR (log)	overall	-4.36	.39	-5.99	-3.05	N	2276
	between		.15	-4.71	-3.96	n	30
	within		.37	-5.63	-3.26	T-bar	75.87
MVC (log)	overall	14.89	2.59	8.44	20.86	N	2246
	between		2.53	9.29	20.51	n	29
	within		.37	12.48	16.56	T-bar	77.45

Table III. Bivariate Correlations of the variables of the fixed-effect analysis

	Variable	1	2	3	4	5	6	7	8	9
1	Management compensation per member (log)	1.00								
2	Total assets (log)	.68	1.00							
3	Hazard Human Capital	.06	.15	1.00						
4	Hazard Social Capital	.00	.09	.35	1.00					
5	Hazard International experience	.22	.20	.14	.14	1.00				
6	Hazard Operational Experience	.03	.05	.41	.38	.24	1.00			
7	EBIT (log)	-.07	-.01	-.04	-.02	-.01	-.02	1.00		
8	TobinsQ (log)	.20	-.03	-.07	-.11	-.06	-.07	-.07	1.00	
9	TSR (log)	.04	.17	-.10	-.11	.03	-.06	.07	-.18	1.00
10	MVC (log)	.62	.97	.15	.10	.17	.04	-.01	.02	.15